3. ADDITIONS TO THE PLANT DISEASES OF SOUTH WESTERN AUSTRALIA,

BY

W. M. CARNE, F.L.S.

Department of Agriculture.

(*Read 13th September, 1927. Published 14th December, 1927*).

This paper adds to the list of diseases previously given (*vide* Proceedings Roy. Soc. W.A., Vol. XI., pp. 43–68, 1924–5) and includes a few corrections. The method of setting out the records previously used has been followed.

Occurrence is indicated by—

VC very common.
C common.
O occasional. Occurring most years but not plentifully.
R rare.

Importance—

4. Very serious, leading to severe loss.
3. Serious and warranting control measures.
2. Not normally serious and control measures not generally warranted.
1. No economic importance.

Season of Occurrence—

W Wet season (Apl. or May to Sept. or Oct.).
W (Spring)—Sept. to end of wet season.
W (Autumn)—May to July.
D Dry season (Oct. or Nov. to March or April).
D (early summer)—Oct. to Dec. Usually indicates that the disease is associated with summer rains.

References.—Unless otherwise stated all references are to the Journa of Agriculture of W.A. (Second Series).

FRUIT TREES.

POME FRUITS.

Ripe or Bitter Rot	Glomerella cingulata (St.) Sp. & v. S. Apple, pear and quince fruits. O. 2. W (Autumn)
Alternaria Fruit Rot	Alternaria sp. } Common storage rots.
Blue Mould	Penicillium expansum Lk. } Common storage rots.
Deep Scald of Apples	Occasional trouble in cold stores, principally on Dunn's.
Bitter Pit of Pears and Quince	R. 3–4. D (Vol. 4, p. 204, 1927).
Lithiasis of Pear	R. 2–3. D. (Vol. 4, p. 202, 1927).
Fasciation of Apple	Non-parasitic. O.1.D. Apparently confined to central fruits of clusters.
Proliferation of Apple	Non-parasitic. R.1.D.

Dieback of Pears	Non-parasitic. O.4.D. W (Spring) and D (early summer). Locally known as "fire-blight." Young shoots are affected in spring as by fire. Trees recover later in summer. Due principally to bad drainage.
Dieback of Apples	Non-parasitic. C. 2–3. D. Associated with poor gravelly soils with a tendency to dry out in the summer.
Bordeaux Fruit Russet Injury	Non-parasitic. Due to the use of Bordeaux or Burgundy Mixtures at pinking stage or later.

STONE FRUITS.

Crown Gall	Pseudomonas tumefaciens. Smith & Town. On Japanese plums, Queen's Park, 1926; Bassendean, 1927.
Calyx Rot of Apricots	Sclerotinia sclerotiorum (Lib.) Mass. Recorded in previous list as due to Monilia. Attacks the young fruit during wet weather between setting and the falling of the perianth. Known only in the Upper Swan District.
Shot Hole of Cherry	Clasterosporium carpophilum (Lev.) Aderh. Recorded previously on apricot, almond, plum and peach. Jardee. Nov., 1926.
Schizophyllum commune Fries	A wound parasite common on sunburnt and partially dead branches of stone fruits.
Dieback of Apricot	Cause unknown. Dieback is preceded by a discoloration of the wood. Kelmscott, 1926.
Fruit Gummosis of Japanese Plum	Known only on variety "Rubio" at Mahogany Creek where it has caused a total loss in Jany. 1926 and 1927. Portion of the fruit becomes water-logged and brown, and a gummy sap exudes on the surface. Probably physiogenic.
Oil Spray Injury	Non-parasitic.

CITRUS FRUITS.

Brown Rot.	Phytophthora (Pythiacystis) citrophthora (Sm. & Sm.) Leonian. R. 3–4. D (autumn). Found in May, 1926 following exceptional rains in April. Active until mid-June. Not found in 1927. Attacks fruits of all citrus, but the leaves only to a minor extent. Not distinguishable in field from next disease, except by the absence of severe leaf and twig attack.
Brown Rot	Phytophthora hibernalis Carne. (Proc. Roy. Soc. W.A., Vol. XII., pp. 13–41, 1925–6). VC. 3–4. W. Recorded in previous list as Brown Rot of Oranges and Brown Rot of Lemons. Attacks fruit, leaves and twigs of citrus. Usually active from June to August.

Citrus Pit	Pseudomonas citriputealis (C.O. Sm.) Stev. (Vol. 3, p. 378, 1926) VC. 2-4 W. On lemons, mandarins and oranges in order of severity.
Dry lemons	R. 4. D. Physiogenic disease of unknown origin.

GRAPES.

Eel Worm	Caconema (Heterodera) radicicola (Greef) Cobb. North Perth, May, 1926.
Drought Spot	C. 1–2 D. Non-parasitic.

PASSION VINE.

Sclerotinia Foot Rot	Sclerotinia sclerotiorum (Lib.) Mass. O. 4. D
Fusarium Foot Rot	Fusarium sp. O. 4. D.

CAPE GOOSEBERRY.

Fruit Rot	Ascochyta sp. C. 3–4. W & D (early summer).
Foot Rot	Rhizoctonia bataticola (Taub.) Butler, O. 4. W & D.
Proliferation	Non-parasitic.

WALNUT.

Anthracnose	Pseudomonas juglandis Pierce. Bridgetown, Feb., 1927.

OLIVE.

Anthracnose	Gloeosporium ? olivarum D'Alm., Glen Forrest, June, 1927.

VEGETABLE CROPS.

POTATO.

Mosaic	Virus Disease. C. 3. W (Spring) and D (Early summer). Vol. 4, p. 322, 1927. All seed, except strains from Albany-Denmark line, upwards of 100% affected.

BEANS.

Rhizoctonia Foot Rot of French Bean	Macrophomina phaseoli (Maubl.), Ashby, South Perth. December, 1925. Both Macrophomina and Rhizoctonia bataticola stages present.
Sclerotium Foot Rot of French Bean	Sclerotium Rolfsii Sacc. O. 3–4, D.

LETTUCE.

Bacterial Soft Rot	Bacillus sp. Perth, December, 1925.
Grey Mould	Botrytis cinerea Pers. Arrino, August, 1926.

CRUCIFERS.

Oedema of Cauliflowers	Non-parasitic. Belmont, August, 1925.
Pink Mould of Cauliflower	Cephalothecium roseum Cda. Capel, November, 1925.

MELONS.

Water Melon Wilt	Fusarium ? niveum E.F.S. O. 3–4. D. Serious on land where melons have been grown several years in succession.

CEREAL DISEASES.

WHEAT.

Yellow Bacterial Disease	Pseudomonas tritici Hutch. R. 4. W. and D (Early Summer). Disease appears only as plants head. Known only from Yelbini. Associated with Tylenchus tritici. See Agric, Journal W.A., 3. 512, 1926.
Pleosphaeria Seedling Blight	Pleosphaeria semeniperda. Britt. & Adam, Merredin, 1926. Kills seeds in soil and seedlings or stunts plants.
Leaf Rust	Puccinia triticina Eriks. O. 1–3. W (Spring). Common, 1927.
Leaf Spot	Septoria tritici. Desm. Recorded in previous list as P. gramineum. VC. 1. W & D.
Foot Rot	Helminthosporium sativum, P.K. & B. Bullfinch, October, 1926. Merredin, July, 1927.
Brown Point of grain	Penicillium sp . Macrosporium sp., and Cladosporium sp. Common when rain occurs on ripening or ripe crops. Affects germination more or less.
Pink Spots on Wheat Grains	? Coniothecium sp. Associated with rain on ripening or ripe crops. Mainly in Northern wheat belt. Germination more or less affected.
Seedling Blight	? Coniothecium sp. Merredin, July, 1927.
Grey Speck of Oats and Wheat	Cause not determined. 1–4. W. Locally called " White Wilt." Identical with the " Roadside Take-all " oat disease of South Australia. Mainly around Narrogin, but extending at least North to Beverley, East to Kulin and South to Broome Hill. Associated with gravelly and powdery soils carrying White Gum and Mallet. Plants recover if conditions favourable when warm weather sets in. Controlled by dressings of manganese salts plus sulphate of ammonia.
Malformation of Tillers	Due to adhesion of lower leaf sheaths and blades. Merredin State Farm, August, 1926, and in pot experiments at Perth. Stated by E. J. Limbourn, the officer in charge of cereal breeding at Merredin, to be common in Merredin and other Federation crossbreds.

BARLEY.

Stem Rust	Puccinia graminis Pers. O. 1. W (Spring) and D (Early Summer).
Pink Stem Disease	? Coniothecium sp. Beverley January, 1925. Associated with the same fungus as found with pink spotted wheat grains.
Leaf Stripe Disease	Pleospora sp. O – C. 1–2. W. More serious on seedlings than older plants.

OATS.

Pleosphaeria Disease	Pleosphaeria semeniperda Britt. & Adam. Associated with a leaf stripe. Beverley, September, 1926.
Take-all	Ophiobolus cariceti (Berk & Br.) Sacc. Belka, September, 1927.
Leaf Spot	Helminthosporium avenæ. Eidam. C. 1–2. W.
Grey Speck	See wheat. 2–4. W.

SORGHUM.

Covered grain smut	Sphacelotheca sorghi (Lk.) Clint. Kaffir Corn, Jardee, March, 1926; Broom Millett, Yarloop, July, 1927.

MISCELLANEOUS CROP PLANTS.

JAPANESE MILLET.

Grain Smut	Sorosporium ? panici—miliacei (Pers.) Tak. Yarloop, July, 1927.

LUCERNE.

Rhizoctonia Disease	Rhizoctonia bataticola (Taub.) Butler, Midland Junction. January, 1925.

MISCELLANEOUS PLANTS NOT CROP PLANTS.

ASTER SP. (Michaelmas Daisy).

Mildew	Erysiphe cichoracearum D.C. Perth, May, 1927.

AVENA BARBATA Brot. (Yatheroo Oats.)

Rust	Puccinia coronata Cda. Perth, November, 1925.
Leaf Spot	Leptosphaeria avenaria Weber. South Perth, July, 1927.

DAHLIA SP.

Eelworm	Caconema radicicola (Greef), Cobb. C.

EHRHARTA LONGIFLORA Sm. (Annual Veldt Grass).

Leaf Spot	Pleosphaeria semeniperda, Britt & Adam. Carlisle, August, 1927.

GLADIOLUS SP.

? Mosaic .... O — C. 4 D. + W.
Corm Rot. .... Fusarium oxysporum var. gladioli. L.M. Massey C. 3–4 D.

HORDEUM MURINUM L. (Barley Grass).

Leaf Spot .... Septoria passerinii Sacc. Nungarin, October 1926.

IRIS SP.

Selerotium Disease .... Sclerotium Rolfsii Sacc. Swan View, December, 1926.
Mosaic .... Swan View, December, 1926.

LATHYRUS ODORATUS L. (Sweet Pea).

Leaf Spot .... Ascochyta sp. O.W.
Foot Rot .... Corticium vagum B. & C. Bayswater, February, 1927.
Broom Rape .... Orobanche cernua Loefl. Perth, September, 1926.

LOLIUM PERENNE L. (Perennial Rye Grass).

Rust .... Puccinia coronata Cda. South Perth, November, 1925.

PAPAVER NUDICAULE L. (Iceland Poppy).

Phytophthora Rot .... Phytophthora sp. C. 3–4 W.

PASSIFLORA EDULIS sims (Passion Fruit).

Eelworm .... Caconema radiciola (Greef) Cobb. Common around Perth.

PINUS SP. (Pine Trees).

Root Rot .... Pleurotus lampas Berk. Coolup, June, 1926,
Nursery Fungus .... Thelephora terrestris Ehrh. Gnangara, September, 1926. Non-parasitic.
Curly Needle .... Cause unknown. Bickley, November, 1926.

SENECIO VULGARIS L. (Groundsel).

Rust .... Puccinia tasmanica Diet. Kelmscott, September, 1927.

SISYMBRIUM ORIENTALE L.

White Rust .... Albugo candida (Pers) Rouss. Merredin. September, 1926 and June, 1927.

STIPA. SP.

Smut .... Cintractia hypodytes (Sch.) Diet. Goomalling, November, 1925,

VIOLA TRICOLOR L. (Pansy).

Eelworm .... Caconema radicicola (Greef) Cobb. Perth, August, 1926.

By Authority: Fred. Wm. Simpson, Government Printer, Perth.